VAISALA

QUICK GUIDE

Vaisala HUMICAP® Humidity and Temperature Transmitter HMT140

English

M211484EN-A

PUBLISHED BY

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Table of Contents

ENGLISH 5
- Product Overview 5
- Dimensions 6
- Duct Installation Kit 7
- Wiring 8
- Hardware Setup 11
- HMT140 Utility Installation 11
- HMT140 Utility Configuration 12
- Battery Replacement 12
- IR Sensor 13
- Technical Support 14
- Product Returns 14
- Warranty 14
- Technical Data 15

DRILLING TEMPLATE 19

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ENGLISH

Product Overview

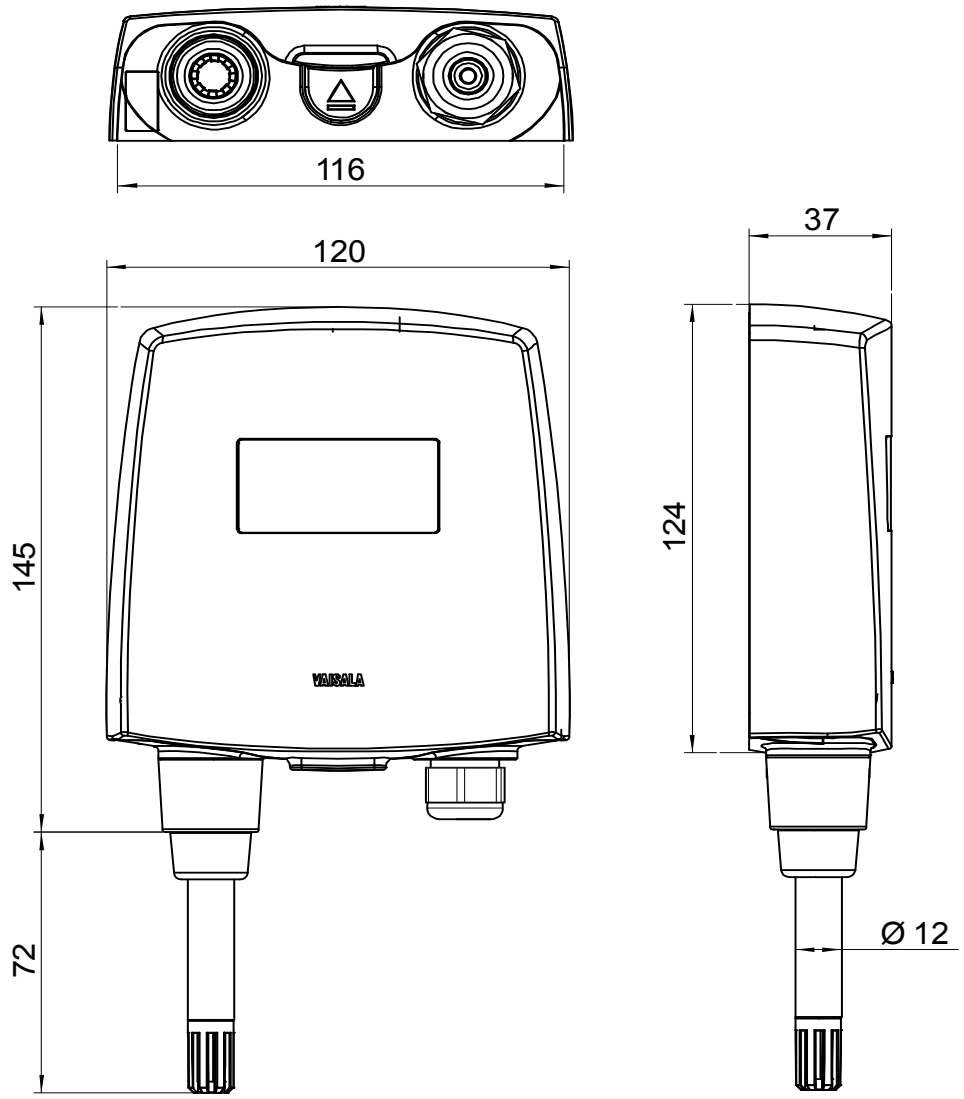
The Vaisala HUMICAP® Wireless Humidity and Temperature Transmitter HMT140 measures relative humidity and temperature using the connected probe and analog signals – RTD, Voltage, Current loops and Contacts. It outputs data via wireless transmitter and is powered with three 3.6 volt DC batteries and optional 9-30VDC connection and comes in 2 models, with or without the optional LCD display.

The HMT140 transmitter's output quantities are configurable. Available quantities are Relative Humidity (RH), Temperature (T), RTD, Contact, mV and mA. The default output quantities are set at the factory during order time. These factory preset quantity selections and other wireless parameters can be changed afterward using the configuration port and included utility if necessary.

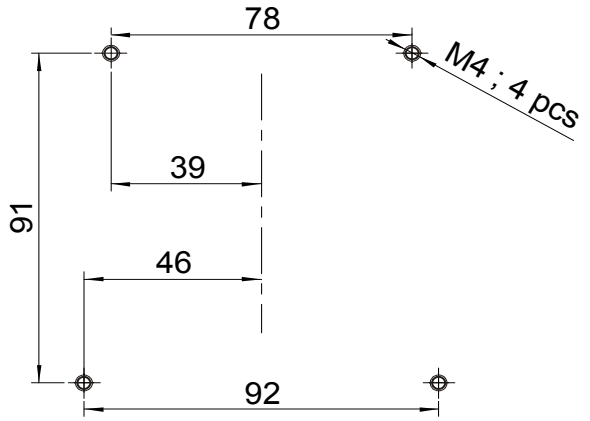
The HMT140 is available either with a fixed probe directly attached to the transmitter housing or a remote probe with different (3/5/10m) cable lengths.

The HMT140 is also available with an optional LCD display without backlight. It is typically installed mounted on the wall with up to four screws (not included). Duct installation kits are available as accessories. There is a drilling template inside the back cover of this guide to help you position the screws correctly.

Dimensions

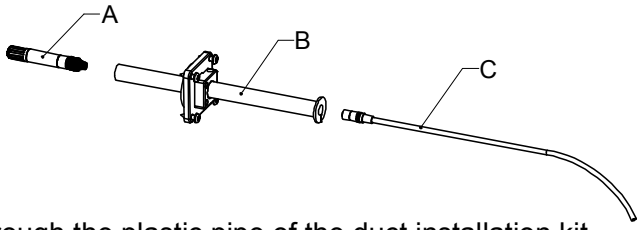


Wall Assembly dimensions



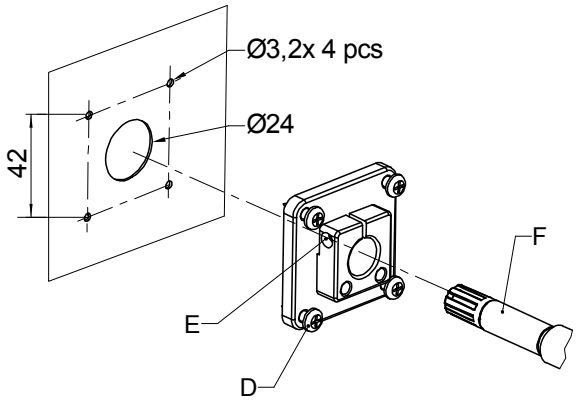
Duct Installation Kit

A = Probe (HMP110)
B = Duct installation kit
C = Probe Cable

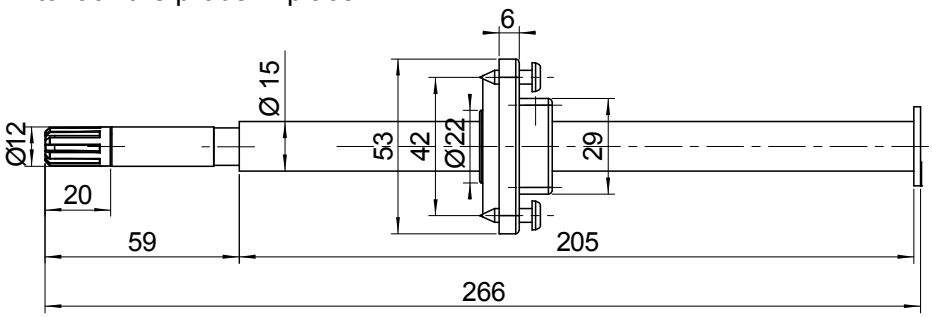


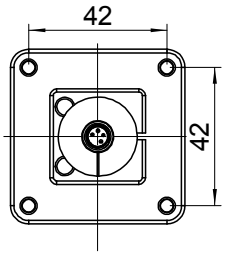
1. Pass the probe cable through the plastic pipe of the duct installation kit.
2. Connect the probe cable to the HMP110.

D = Installation screw
E = Pipe locking screw
F = Probe (HMP110)

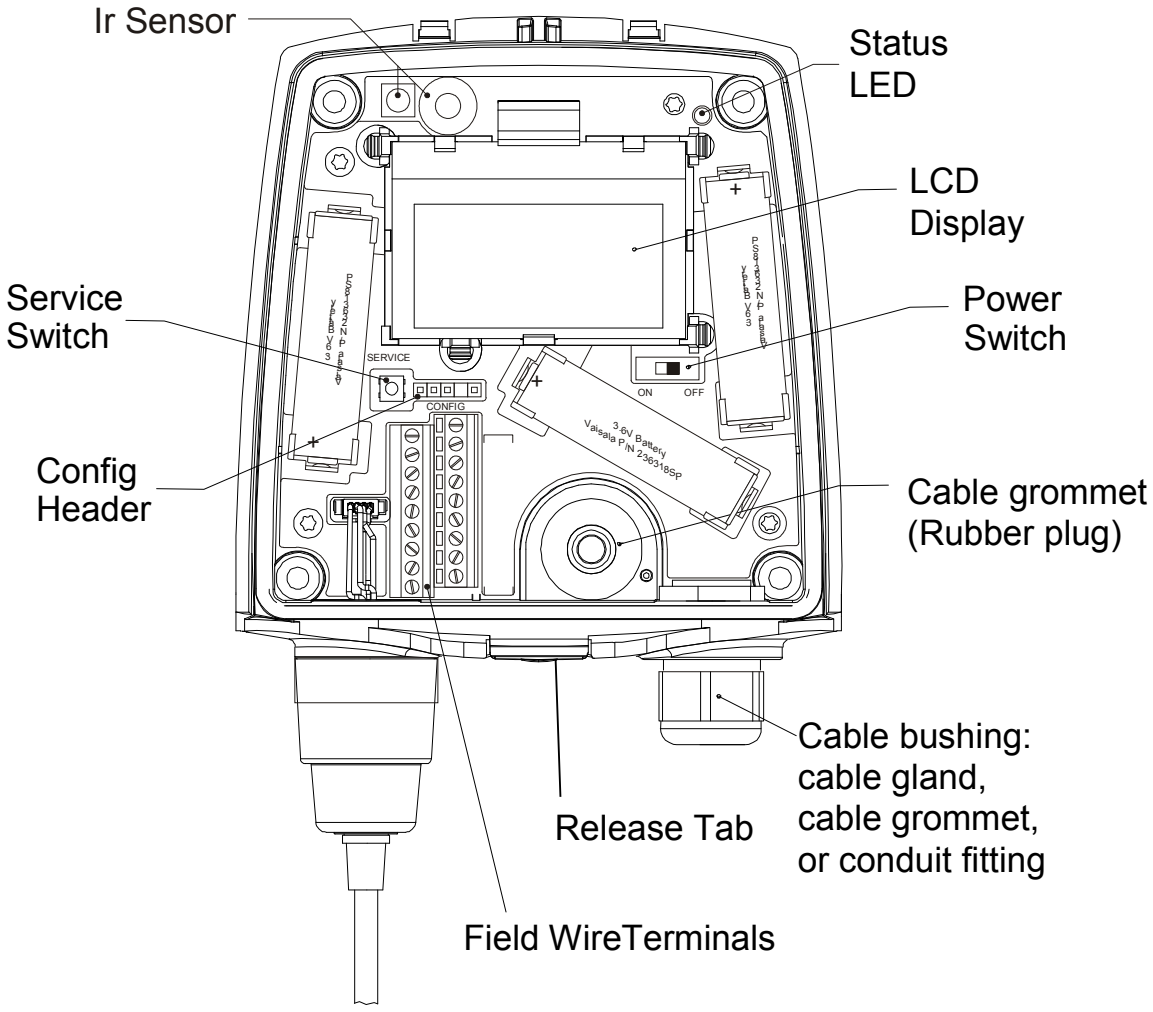


3. Use a 24mm drill bit to make a hole in the duct wall.
4. Use a 3.2mm drill bit to make four holes for the installation screws (ST4.2x16-C-Z DIN7981 screw, 4pcs). The holes should be arranged in a square around the 24mm hole, at a distance of 42mm from each other.
5. Mount the probe holder using the screws (D).
6. Adjust the depth of the plastic pipe and tighten the screw (E) to lock the probe in place.





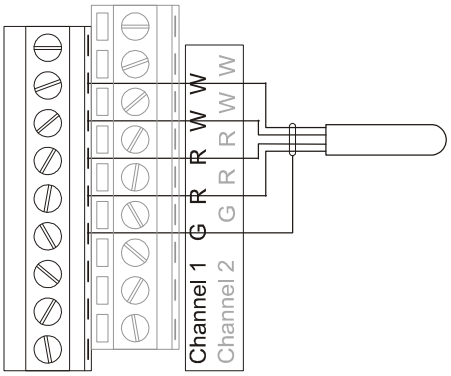
Wiring



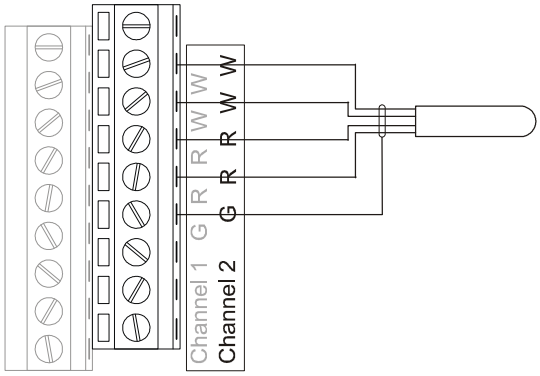
HMT140 Components

1) RTD Wiring Diagram

Channel 1: RTD

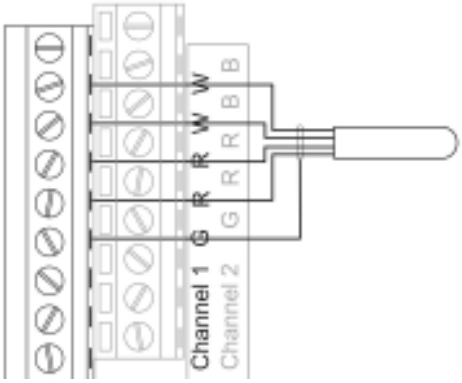


Channel 2: RTD

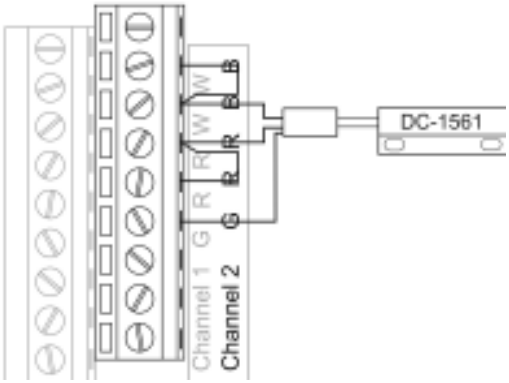


2) RTD and Boolean Wiring Diagram

Channel 1: RTD

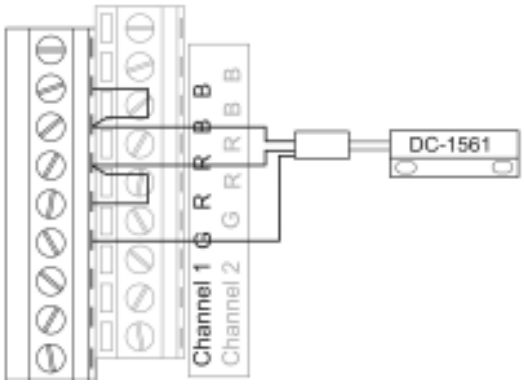


Channel 2: Boolean
(Magnetic Switch)

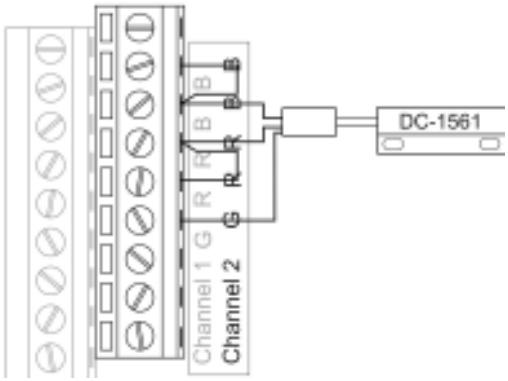


3) Boolean Wiring Diagram

Channel 1: Boolean
(Magnetic Switch)

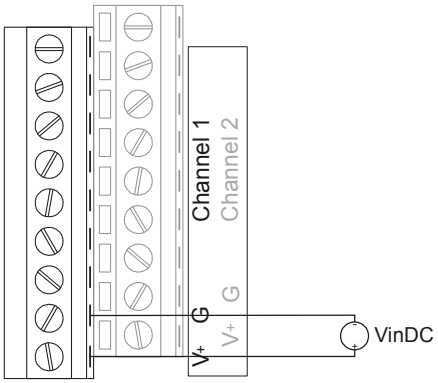


Channel 2: Boolean
(Magnetic Switch)

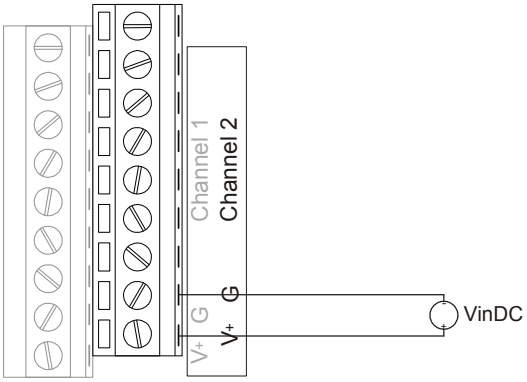


4) Voltage Wiring Diagram

Channel 1: DC Voltage

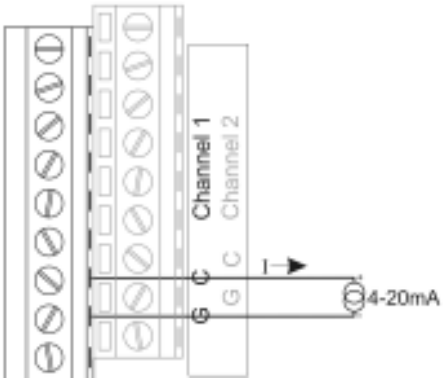


Channel 2: DC Volatge

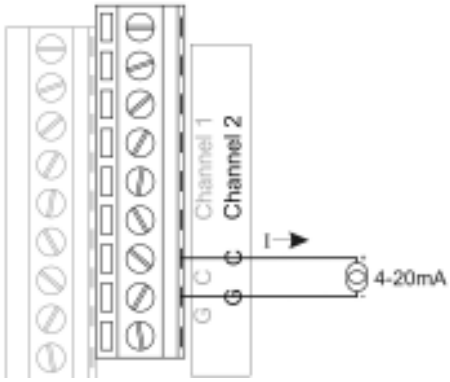


5) Current Wiring Diagram

Channel 1: Current Loop 4-20mA



Channel 2: Current Loop 4-20mA



Hardware Setup

To set up the device initially:

1. Open the case by pulling out and up with your fingers while pressing the release tab located between the two glands with your thumb. (See the HMT140 components diagram in "Wiring" section for location of release tab). A slot screwdriver may be used to pry if you are unable to open the case by hand.
2. Ensure the power switch on the device is in the OFF position.
3. Install three 3.6V lithium batteries as indicated in the wiring section. **Note:** Use only Part # 236318SP Vaisala 3.6V Lithium Thionyl Chloride batteries.
4. Ensure that the HMT140 Configuration Cable is disconnected.
5. Turn the device on by moving the power switch on the device to the "ON" position.

HMT140 Utility Installation

Before using the HMT140 Configuration Cable cable to configure the HMT140, the provided software must be installed on the PC. The driver is compatible with Windows 2000, Windows XP, Windows 7, and Windows Server 2003.

To set up the software:

1. Disconnect the HMT140 Configuration Cable if it is already connected.
2. Insert the media that came with the cable, or download the software from http://www.vaisala.com/hmt140
3. Run the HMT140 installation program (HMT140UtilitySetup.exe).
4. Accept the license agreement terms and continue by pressing Next to accept the installation defaults. The installation of the driver may take several minutes.
5. After the software has been installed, connect the HMT140 Configuration Cable to a USB port on your PC. You can then proceed to configure the utility using the steps below.

If you wish to remove the software, you can do so by uninstalling the entry for HMT140 Utility under the publisher Vaisala from the "Programs and Features" or "Add or Remove Programs" feature in the Windows Control Panel.

HMT140 Utility Software Setup

Use the following procedure to quickly set up the HMT140:

1. Turn on the HMT140 and wait 5 seconds.
2. Plug the USB connector on the HMT140 Configuration Cable to the computer if it is not already connected.
3. Open the HMT140 Utility from the start menu.
4. Connect the end of the Configuration cable labelled "USB Wi-Fi Programmer" to the HMT140 "CONFIG" pin header.
5. Click the Retrieve button to identify the HMT140.
6. If the IP address is static, uncheck the "IP Address Dynamically Assigned" checkbox and enter the network parameters in "Network Settings". Otherwise leave this checkbox checked.
7. Enter the parameters for the "WLAN" (wireless LAN router settings).
8. Enter the Destination IP address/name and port number of the host. (viewLinc server settings).

Note: If you do not know the information to enter for steps 6-9, please request these parameters from your network administrator.

9. Click the Sensor tab and select a Transmit Period Time and number of tries for the HMT140 if you do not wish to keep the default settings.
10. Click the Update button. The utility will configure the HMT140.
11. Click the Status tab and wait. Check that the settings appear as configured. Click the "Get" button if they do not appear automatically.
12. Disconnect the HMT140 Configuration cable from the HMT140.
13. Wait 8 seconds.
14. Press the "SERVICE" button on the HMT140.
15. **Optional:** Enter a name for the saved settings in the Saved Settings field and click the disk icon to save.
16. Refer to the viewLinc Administrator Guide to complete the process of adding HMT140's to viewLinc.

Battery Replacement

Use the following procedure to replace the batteries in the HMT140:

1. Open the case by pulling out and up with your fingers while pressing the release tab located between the two glands with your thumb. (See the HMT140 components diagram in "Wiring" section for location of release tab).
2. Turn the power switch off.
3. Remove the batteries by pulling them up firmly. If the battery does not come out easily, one of the battery tabs can be pulled out gently while pulling up.
4. After replacing the batteries, press and hold the service button and turn the power switch on. The LED light will flash and the device will beep 8 times.
5. Release the service button.

To reset the battery meter:

1. Turn off the HMT140. Make sure the configuration Cable is disconnected from the sensor.
2. Press and hold the service button.
3. Turn the HMT140 on while the service button is engaged.
4. Wait four seconds.
5. Release the service button. The battery meter has been reset.

IR Sensor

Use the following procedure to trigger a data packet transmission using the IR Sensor:

1. Turn on the HMT140 and wait for the display to turn on then off.
2. Place your hand near the display. The display will turn on again and the beeper will beep.
3. To trigger a data packet transmission, ensure the Configuration Cable is disconnected from the HMT140 (Sensor mode).
4. Place your hand over the display again and leave it for 5 seconds. The Logger will beep twice to confirm transmission. It will attempt to connect and transmit data to the host.

Technical Support

The complete HMT140 User's Guide is available in English at www.vaisala.com/hmt140.

For technical questions, contact the Vaisala technical support by e-mail at helpdesk@vaisala.com. Provide at least the following supporting information:

- Name and model of the product in question.
- Serial number of the product.
- Name and location of the installation site.
- Name and contact information of a technically competent person who can provide further information on the problem.

Product Returns

If the product must be returned for service, see www.vaisala.com/returns.

For contact information of Vaisala Service Centers, see www.vaisala.com/servicecenters.

Warranty

Visit our Internet pages for more information and our standard warranty terms and conditions: www.vaisala.com/warranty.

Please observe that any such warranty may not be valid in case of damage due to normal wear and tear, exceptional operating conditions, negligent handling or installation, or unauthorized modifications. Please see the applicable supply contract or Conditions of Sale for details of the warranty for each product.

Technical Data

Humicap Relative Humidity Measurement Specifications (With HMP110)

Property	Description / Value
Measurement range	0 ... 100 % RH
Accuracy (including non-linearity, hysteresis, and repeatability): at 0 ... +40 °C (+32 ... +104 °F) at -40 ... 0 °C and +40 ... +80 °C (-40 ... +32 °F and +104...+176 °F)	 ±1.7 %RH (0 ... 90 % RH) ±2.5 %RH (90 ... 100 % RH) ±3.0 %RH (0 ... 90 % RH) ±4.0 %RH (90 ... 100 % RH)
Factory calibration uncertainty at 20 °C (+68 °F)	±1.5 %RH
Humidity sensor	HUMICAP® 180R
Stability	±2 %RH over 2 years

Humicap Temperature Measurement Specifications (With HMP110)

Property	Description / Value
Measurement range	-40 ... +80 °C (-40 ... +176 °F)
Accuracy over temperature range: at +15 ... +25 °C (+59 ... +77 °F) at 0 …+15 °C and +25 …+40 °C (+32 ... +59 °F and +77 ...+104 °F) at -40 ... 0 °C and +40 ... +80 °C (-40 ... +32 °F and +104...+176 °F)	 ±0.2 °C (±0.36 °F) ±0.25 °C (±0.45 °F) ±0.4 °C (±0.72 °F)
Temperature sensor	Pt1000 RTD 1/3 Class B IEC 751

Analog Inputs

Property	Description / Value
2 Channel Current input signals	0-22 mA Resolution: 0.67 µA Accuracy: ±0.15 % F.S. at +25 °C Input Impedance: 62 Ohms
2 Channel Voltage input signals	0-5 V, 0-10 V Resolution 0.0034% F.S. ±0.15 % F.S. at +25 °C Input Impedance: 37K Ohms
2 Boolean Contacts	Open /Close with magnetic reed relay cable connections
Isolation	One common per logger
Overload Protection	40 mA max. (reverse polarity protected) ±24 VDC max. (reverse polarity protected)
2 Resistive Temperature input signal	Pt 100 RTD / 4 wire Class A IEC 751
RTD Measurement range	-196 °C to +90 °C
RTD Accuracy over temperature range	-196 to -90 +/- 2.5 Deg C. -90 to -30 +/- 0.75 Deg C -30 to 0 +/- 0.5 Deg C 0 to 50 +/- 0.25 Deg C 50 to 90 +/- 0.75 Deg C
2 Contacts input signals	Dry contact

Humicap Operating Environment Specifications

Property	Description / Value
Operating temperature range Transmitter body, no display Transmitter body, with display HMP110 probe	 -40 ... +60 °C (-40 ... +140 °F) -20 ... +60 °C (-4 ... +140 °F) -40 ... +80 °C (-40 ... +176 °F)
Storage temperature range	-50 ... +70 °C (-58 ... +158 °F)
Electromagnetic compatibility	EN 61326-1:2006 Electrical equipment for measurement, control and laboratory use - EMC requirements - Basic immunity test requirements EN 55022:2006 + Am 1:2007 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement. Class B.

Mechanics Specifications

Property	Description / Value
Operating Temperature Range Transmitter body, no display Transmitter body, with display	 -40°C...+60°C -20°C...+60°C
Material Transmitter housing Display window Probe body Probe grid filter	 PBT plastic PC plastic Stainless steel (AISI 316) Chrome coated ABS plastic
Housing classification	IP65 (NEMA 4)
Connections Screw terminals HMP110 Probe interface	 26 AWG ... 20 AWG 4-pin M8 female panel connector
HMP110 Probe cable lengths	3 m, 5 m, 10 m, cables can be cascaded up to 50 m
RTD Temperature Sensor Sensor tip material Sensor tip length Sensor tip diameter Cable length	 Stainless steel (AISI 316) 50.8 mm 4.76 mm 5 m
Hermetic Door Switch Sensor Cable length	 7.6 m
Display (optional)	128 x 64 resolution full graphics B&W display without backlight
Weight (Wall model, including probe)	300 g

Wireless Specifications

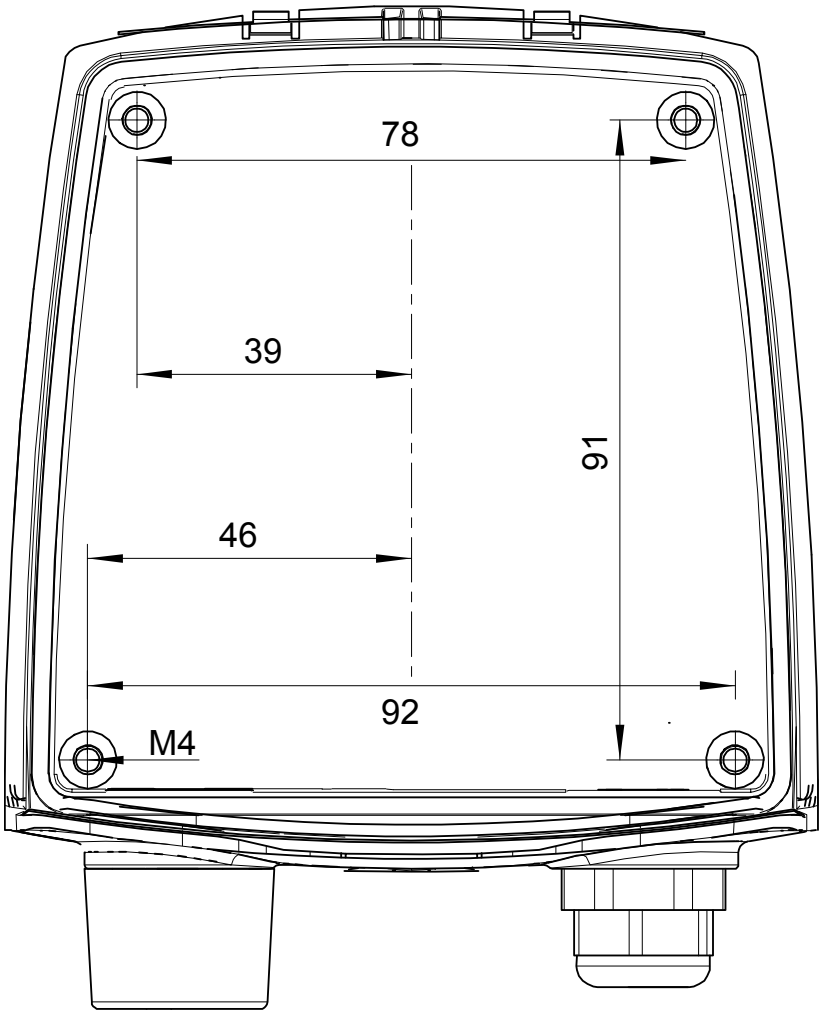
Property	Description / Value
Networking Standards	IEEE 802.11 b/g
Frequency Band	2402 ~ 2480MHz
Modulation	802.11b compatibility: DSSS(CCK-11, CCK-5.5, DQPSK-2, DBPSK-1) 802.11g: OFDM (default)
Channel intervals	5MHz
Channels	1 - 14
Wi-Fi Security	WEP (128-bit), WPA, WPA2 (Personal)
Output Power	+18dBm (63mW)
Receiver Sensitivity	-85dBm typical
Antenna	Onboard Wipe
Data Rates	802.11 b: 1,2, 5.5,11 Mbps : 802.11 g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
Certifications	FCC: U3O-G2M5477 (FCC Part 15, FCC CRF Title 47 Part 15) IC: 8169A-G2M5477 (RSS-210), CE: EU ID # 0681 (ETSI EN 301 489-1, 489-17, 328, EN 55022 Class B, EN61000 4-2, 4-3, 4-6, 4-8, EN 60950) Wi-Fi Certified: WFA7649 United States requirements for unintentional radiators, FCC 47 CFR Part 15-2011 Subpart B.

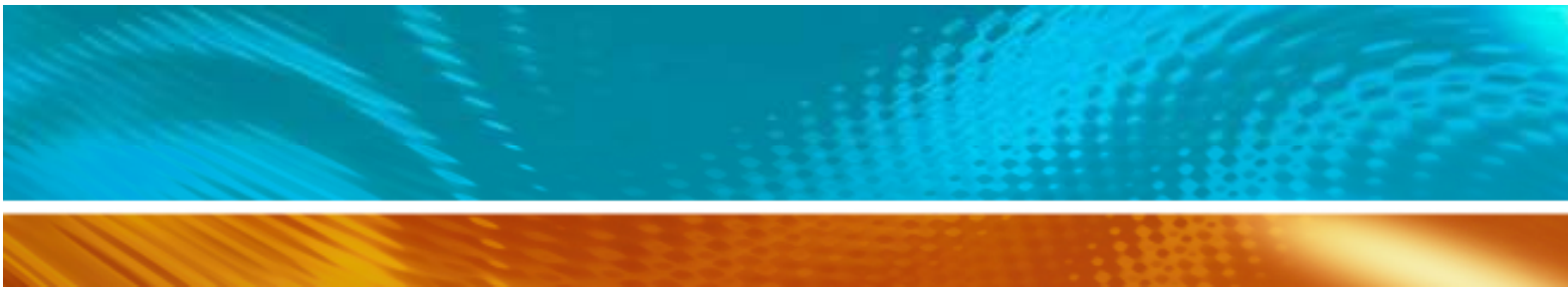
Property	Description / Value
	Canadian requirements for unintentional radiators, IC ICES-003:2004 European Union CE Marking requirements for process control, measurement, and laboratory equipment (EMC Directive 2004/108/EC):EN 61326-1:2006 for emissions and immunity EN 61326-2-3:2006 for emissions and immunity of transducers with signal conditioning EN 61000-3-2:2006+A1:2009 +A2:2009 for harmonics EN 61000-3-3:2008 for flicker Australian and New Zealand EMC requirements for process control, measurement, and laboratory equipment, EN 61326-1:2006 for emissions.

Other Inputs Specifications

Property	Description / Value
Voltage inputs	50Volts max, input impedances 37K Ohms
Current inputs	40 mA., input impedances 62 Ohms
RTD inputs	not a voltage or current input device, input impedances 5.1K Ohms

DRILLING TEMPLATE





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